

# National Park Service

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

## NPSTORET

# A Water Quality Database Management and Analytical System for National Park Units, Networks, and Others

by

**Dean Tucker, Michael Matz, & Paula Galloway**

**National Park Service**

**Water Resources Division**

**Fort Collins, CO**



# Presentation Overview

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



## Background



## NPSTORET



## Lessons Learned

EXPERIENCE  
YOUR  
AMERICA



Grand Teton National Park, WY



# Background

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA



## NPS Organic Act of 1916

*“... to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them **unimpaired** for the enjoyment of future generations.”*



Statue of Liberty NM, NY




# Clean Water Act (CWA)





National Park Service  
U.S. Department of the Interior

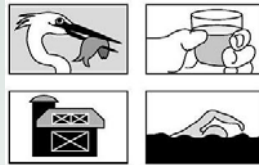
Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

 Under the Clean Water Act (CWA), states are responsible for developing and enforcing water quality standards on all lands within their boundary

-  State designated beneficial uses
-  Section 303(d) quality **impaired** waters and causes
-  Section 305(b) states compile a biennial Report to Congress on the nation's water quality
-  Special designations recognizing waters of exceptional quality as defined in State water quality standards





# NPS Impaired Waters

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



- 139,033 miles of rivers & streams

- 1,716 miles of CWA 303(d) impaired rivers & streams

EXPERIENCE  
YOUR  
AMERICA

1.23%  
Impaired



# NPS Impaired Waters

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



- 4,230,480 acres of lakes, reservoirs, estuaries and marine areas

EXPERIENCE  
YOUR  
AMERICA

- 1,065,540 acres of CWA 303(d) impaired lakes, reservoirs, estuaries, and marine areas

25.2%  
Impaired








# CWA Environment

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



## "The 56 Ring Circus"

-  Inconsistent and inappropriate standards
-  Inconsistent monitoring practices
-  Inconsistent assessment methods
-  Inconsistent methods of defining waters
-  Inconsistent databases – content, format, etc.



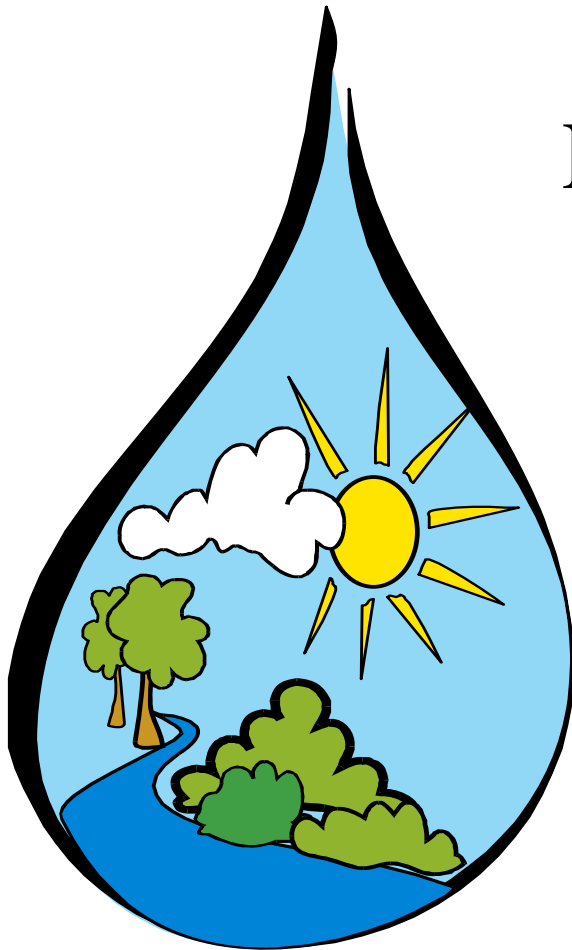
EXPERIENCE  
YOUR  
AMERICA

(Issues in compiling 56 separate water quality assessments into the EPA's *National Water Quality Inventory*)

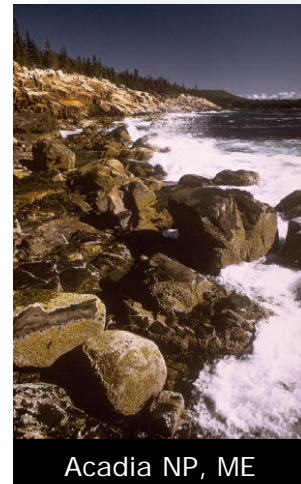




EXPERIENCE  
YOUR  
AMERICA



## EPA Data Warehouse for Ambient Water Quality and Biological Data



Acadia NP, ME



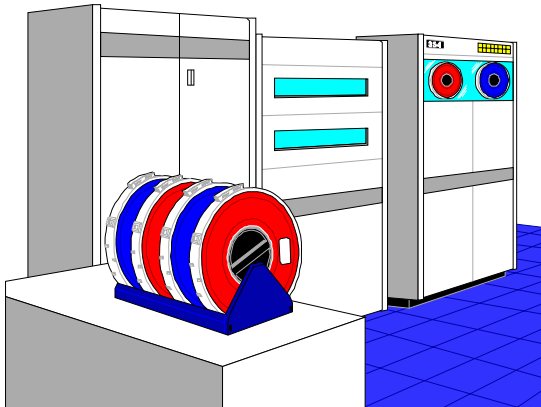
# STORET History

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA



✓ **STO**rage and  
**RET**rieval

✓ Began in DOI in 1964

Legacy STORET

✓ 1 Million (plus) Sites

✓ 200 Million (plus)  
Observations



Grand Canyon NP, AZ



# NPS Data in Legacy STORET

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA



**17,477 Sites**



**2,543,143 Obs.**



**2,206 Parameters**



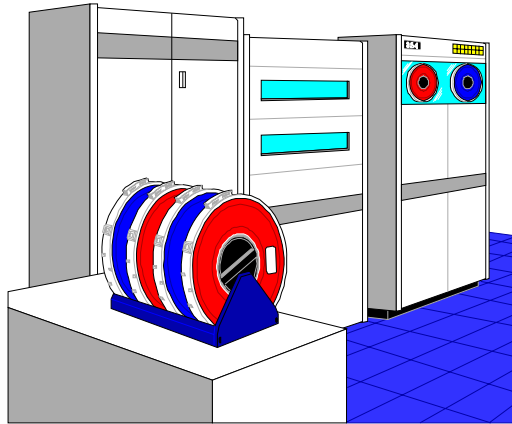
**191 NPS Units**



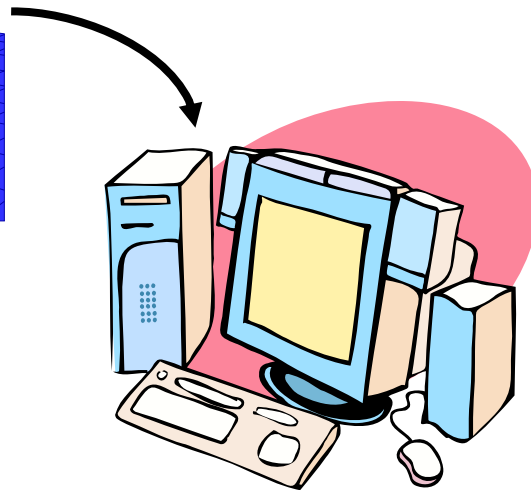
# STORET Environment

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



**Old  
STORET**



**WRD  
STORET**



EXPERIENCE  
YOUR  
AMERICA



[www.epa.gov/storet/dw\\_home.html](http://www.epa.gov/storet/dw_home.html)









# STORET Background

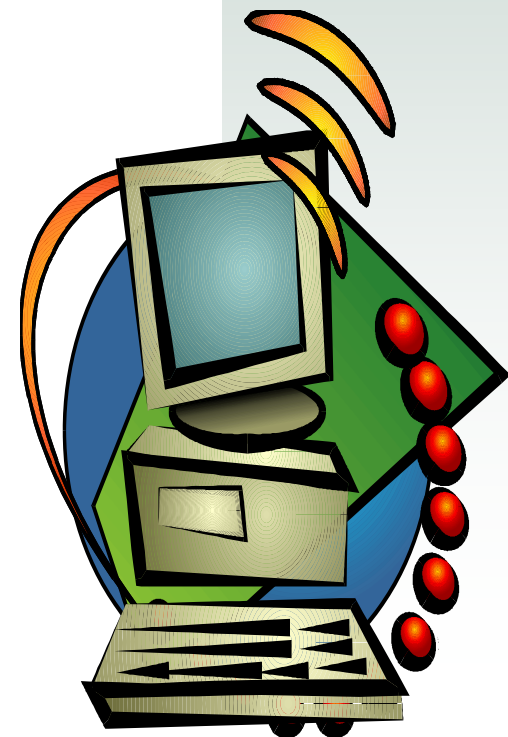
National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

-  Data of Documented Quality
-  Oracle Database
-  Data Standards for Data Sharing (ITIS, EPA)
-  Locally Owned and Operated
-  EPA Maintained
-  Public Read-Only Access to EPA Data Warehouse










# STORET Background

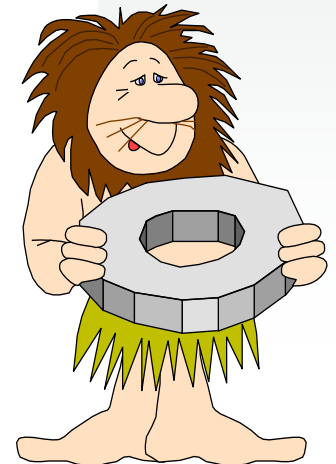
National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

-  Robust, full-featured, well-supported database
-  NPS runs its copy of STORET; EPA runs the National Data Warehouse
-  Public can access data at:  
<http://www.epa.gov/storet>
-  Fully compliant with ITFM and NWQMC metadata recommendations
-  NPS-77 states that the NPS should provide water quality monitoring data to STORET





# STORET Background

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA



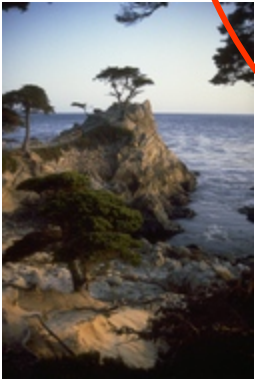
*Physical*

*Chemical*

*Other*



*Biological*





# STORET Background

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO




EXPERIENCE  
YOUR  
AMERICA



STORET has steep learning curve



Don't re-invent the wheel



Data must be in STORET-compatible format



Scotts Bluff National Monument, Nebraska



# The Chosen Path

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

## Two pronged approach:



# NPSTORET



# NPSEDD



Olympic National Park, WA



# NPSTORET

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



Microsoft  
Access-based



N.R. Database  
Template for  
Water Quality



STORET-lite



Tailored to  
flow data to  
STORET



Virgin Islands National Park, VI

EXPERIENCE  
YOUR  
AMERICA



# NPSTORET Switchboard

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

NPSTORET Main Switchboard



## NPSTORET *Main Templates*

Projects

Stations

Metadata

Results

Reports & Stats

Exit



About ...

Import ...

Options ...

Utilities ...

Available Organizations:

Select the Organization  
Whose Data You'd  
Like to Edit or  
Click "Add New ...":

|      |  |   |
|------|--|---|
| GATE | Gateway National Recreation Area               | ▲ |
| GRBA | Great Basin National Park                      | ■ |
| HAFO | Hagerman Fossil Beds National Monument         | ▼ |
| MISS | Mississippi National River and Recreation Area | ▼ |

Add New ...

Available Log In IDs:

Select a Log In ID for  
this Organization or  
Click "Add New ...":

|         |          |        |   |
|---------|----------|--------|---|
| GRBAKER | Gretchen | Baker  | ▲ |
| MALLAN  | Margaret | Allan  | ■ |
| MHORNER | Margaret | Horner | ▼ |
| RTHOMAS | Ryan     | Thomas | ▼ |

Add New ...

NPSTORET v.1.53

User entered data are being stored in back end at C:\NPSTORET\NPSTORET\_BE.MDB

STORET Ref. Tables v.1.53





# Projects Template

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

Project ID: KIMO\_WQ for: Cumberland Piedmont Network

Sort by: As Entered

NPSTORET Project Entry Template

Jump to Project ID:

| Main             | Additional Info ...   | Stations | Characteristics   | Personnel                              | Documents | Citations |
|------------------|---|----------|-------------------|--|-----------|-----------|
| Project ID:      | <input type="text" value="KIMO_WQ"/>  |          |                   |  |           |           |
| Project Name:    | <input type="text" value="CUPN WQ Monitoring, KIMO"/>   |          |                   |  |           |           |
| Start Date:      | <input type="text" value="12/18/2002"/>   | ...      | Project Duration: | <input type="text" value="Long Term"/> |           |           |
| Project Purpose: | <p>Conservation of the surface and subsurface aquatic ecosystems of a park relies on the knowledge of, and the ability to recognize, long-term trends in water quality. Over the next few years, due to extensive monitoring efforts, many park managers and researchers will, for the first time, be able to see the effects of landscape-scale use and change upon these aquatic ecosystems. Water quality monitoring data are central to any long-term aquatic monitoring efforts. Recent research at MACA, based upon a non-conditional synoptic sampling design developed by the United States Geological Survey (USGS) National Water Quality Assessment (NAWQA) program, has determined the most accurate methods and protocols for surface and groundwater sampling.</p> <p>Water samples are taken regardless of flow and weather conditions, on fixed calendar dates. Sampling locations will</p> |          |                   |  |           | 3443      |
| Contact:         | <p>Joe Meiman, Hydrogeologist<br/>Cumberland-Piedmont network<br/>Mammoth Cave National Park<br/>P.O. Box 8<br/>Mammoth Cave, KY 42259<br/>phone: 270-758-2162</p>  |          |                   |  |           | 191       |
| Study Area:      | <p>The streams of Kings Mountain National Military Park</p>   |          |                   |  |           | 52        |

Project:

1

of 16 (Filtered)

Add New Project

Delete Project

Close Projects



# Stations Template

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

StationID: KIMO\_GBGB for: Cumberland Piedmont Network

Sort by: As Entered **NPSTORET Station Entry Template** Jump to Station ID:

[Web](#) [Images](#) [Maps](#) [News](#) [Shopping](#) [Gmail](#) [more](#) [Saved Locations](#) | [Sign in](#) | [Help](#)

**Google Maps** e.g., "10 market st, san francisco" or "hotels near lax"  
  [Show search options](#)

[Find businesses](#) [Get directions](#)

[Print](#) [Send](#) [Link to this page](#)

+35° 7' 19.20", -81° 24' 16.17"  
[Make this my default location](#)

**Gardner Branch**  
+35° 7' 19.20", -81° 24' 16.17"  
Get directions: [To here](#) - [From here](#)  
[Search nearby](#) - [Save to My Maps](#)

2000 ft  
500 m ©2008 Google - Imagery ©2008 DigitalGlobe, York County Government, SC, Map data ©2008 NAVTEQ™ - Terms of Use

Station: 1 of 103 (Filtered)



# Metadata Template

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

Organizational Metadata for: Cumberland Piedmont Network

## NPSTORET Metadata Template

1. Collection Procedures

2. Gear Configurations

3. Preserve/Transport

4. Analytical Procedures

5. Lab Sample Prep

6. Characteristics

7. Characteristic Groups

8. Laboratory Info

9. Staff and Roles

10. Citations

11. Analytical Groups

### Define Your Characteristics

Sort by: As Entered OK: Y Results: 1209 Jump to Characteristic:

**STORET Characteristic Name:** Nitrogen, Nitrate (NO3) as NO3 **Spec #:** **Local Name:** NO3 **Seq.:** 19

**Sample Fraction:** Total **Units:** mg/l **Medium:** Water **Field/Lab:** Lab

**Value Type:** Actual **Statistic Type:** **Duration:** **Weight Basis:**

**Temp. Basis:** **Particle Size Basis:**

**Subject Taxon:** **Subject Species #:** **Bio Part:**

#### Choose previously entered procedures, configuration, & lab:

**Analytical Procedure:** 4110-B: Anions in Water by Ion Chromatogr **Lab Sample Prep. Procedure:**

**Collection Procedure:** CUPN\_GRAB: Grab Sample **Gear Configuration:** CUPN\_STFAR: Standard Field Array

**Handling Procedure:** CUPN\_ANION: Anion Collection

**Lab Analysis Done by:** CUPN\_WAT: WATERS Laboratory **Lab EPA Certified for this Characteristic:**

#### Enter detection and/or quantification limits:

**Detection Limit:** 0.02 **Lower Quantification Limit:** 0.0636 **Upper Quantification Limit:**

**Detection/Quantification Limit Description:** MDL from Lab, PQL computed as 3.18X the MDL

#### Enter range value checks for QA/QC:

**Lower Range Value:** **Upper Range Value:**

#### Enter any other characteristic details:

**Characteristic Description:**

Characteristic: 17 of 43 (Filtered)

Add New Delete Resequence

Close Metadata



# Results Template

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

**Visits, Activities, and Results for Project: CUPN WQ Monitoring, KIMO**

Jump to Station Visit:

**Station ID:**

**Station Name:** Dellingham Branch

**Start Date:**  ...

**End Date:**  ...

**Visit Comment:**

**Visit:**

Double-click a record to pop up a record window.

| Local Name       |
|------------------|
| Air Temp         |
| Water Temp       |
| SPC              |
| pH               |
| DO sat           |
| DO conc          |
| ANC Field        |
| FC Field         |
| Flow             |
| Discharge        |
| Weather          |
| Precip Past Week |
| CI               |
| FI               |
| NO2              |
| NO3              |

**Filter Visits, Activities, and Results for Project: CUPN WQ Monitoring, KIMO**

Select visits on the following criteria:

**Stations:**  **Date Ranges:**

**Selected Stations:**

- KIMO\_DBDB: Dellingham Branch
- KIMO\_GBGB: Gardner Branch
- KIMO\_LBLB: Long Branch

**From**  **to**

**OR** **From**  **to**

**OR** **From**  **to**

**OR** **From**  **to**

**OR** **From**  **to**

**Visit Comment Contains:**

**Find visits with activities that meet the following criteria:**

**Activities:**  **Activity Types:**  **Activity Comment Contains:**

**Find visits with activities with results that meet the following criteria:**

**Characteristics:**  **Apply Characteristic Criteria**

☒ **Using OR logic**  
Activities need only meet a single characteristic criteria.

☐ **Using AND logic**  
Activities must meet ALL characteristic criteria.

☐ **Display all results for filtered visits**

☒ **Only display results that meet criteria**

**Result Comment Contains:**

**Clear Selections** **View Spreadsheet** **Apply Filter** **Remove Filter**

**Record:**  of 25

**Filter** **Print** **Import** **Close Results** **Options ...**



# Reports & Stats Template

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



## NPSTORET Results



## NPSTORET Stations



## NPSTORET Characteristics

### Cumberland Piedmont Network

Sorted by S

|   | STORET<br>Name                      | Local<br>Name | Sample<br>Fraction | Unit of<br>Measure        | Value<br>Type | Field/<br>Lab | Medium | Statistic<br>Type | Duration | Weight<br>Basis | Temp.<br>Basis |
|---|-------------------------------------|---------------|--------------------|---------------------------|---------------|---------------|--------|-------------------|----------|-----------------|----------------|
| 1 | Temperature, air                    | Air Temp      |                    | °C                        | Act           | Field         | Air    |                   |          |                 |                |
| 2 | Temperature, water                  | Water Temp    |                    | °C                        | Act           | Field         | Water  |                   |          |                 |                |
| 3 | Specific conductance                | SPC           |                    | mS/cm                     | Act           | Field         | Water  |                   |          |                 |                |
| 4 | pH                                  | pH            |                    | None                      | Act           | Field         | Water  |                   |          |                 |                |
| 5 | Dissolved oxygen<br>saturation      | DO sat        |                    | %                         | Act           | Field         | Water  |                   |          |                 |                |
| 6 | Dissolved oxygen (DO)               | DO conc       |                    | mg/l                      | Act           | Field         | Water  |                   |          |                 |                |
| 7 | Acid Neutralizing<br>Capacity (ANC) | ANC Field     | Total              | mg/l<br>CaCO <sub>3</sub> | Act           | Field         | Water  |                   |          |                 |                |
| 8 | Acid Neutralizing<br>Capacity (ANC) | ANC Lab       | Total              | mg/l<br>CaCO <sub>3</sub> | Act           | Lab           | Water  |                   |          |                 |                |
| 9 | Fecal Coliform                      | FC Field      |                    | #/100ml                   | Act           | Field         | Water  |                   |          |                 |                |



# Reports & Stats Template

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



## NPSTORET Precision Analysis

Filtered Re

Project ID: MACA\_WQ

Station ID: MACA\_BSBS

Station Name: Big Spring

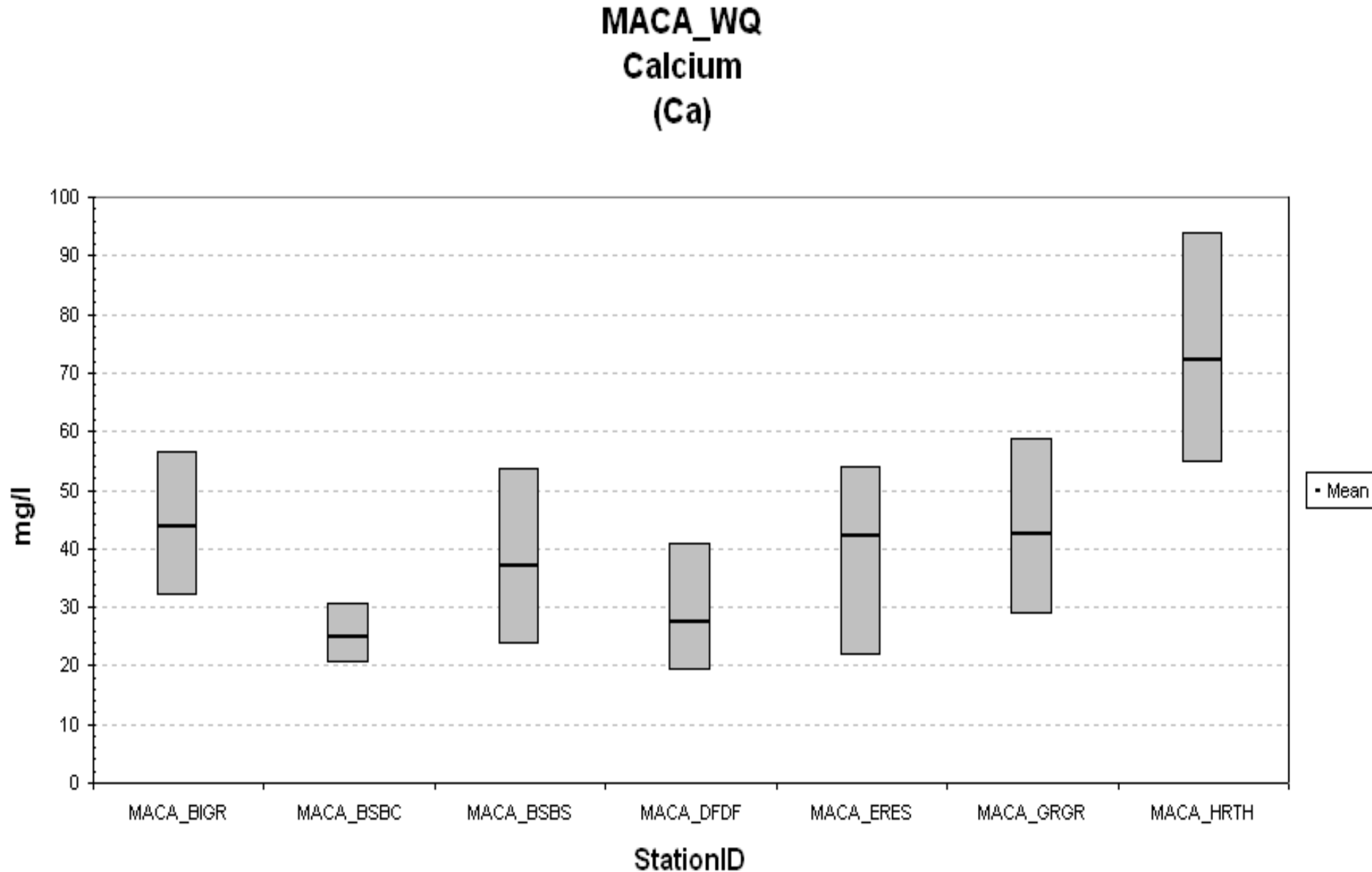
| Local Name | Units   | Sample Date/Time      | Depth (m) | # of Samples | Minimum | Maximum | Mean   | Std Dev | % Rel Prec |
|------------|---------|-----------------------|-----------|--------------|---------|---------|--------|---------|------------|
| DO conc    | mg/l    | 4/11/2005 10:30:00 AM |           | 2            | 9.89    | 9.9     | 9.895  | 0.0071  | 0.1        |
| DO sat     | %       | 9/10/2002 11:30:00 AM |           | 2            | 100.9   | 101.1   | 101    | 0.1414  | 0.2        |
| DO sat     | %       | 7/10/2003 11:00:00 AM |           | 2            | 90.6    | 90.6    | 90.6   | 0       | 0.0        |
| DO sat     | %       | 6/10/2004 10:03:00 AM |           | 2            | 96.1    | 105.2   | 100.6  | 6.435   | 9.0        |
| DO sat     | %       | 8/10/2004 10:51:00 AM |           | 2            | 88      | 88.7    | 88.35  | 0.495   | 0.7        |
| DO sat     | %       | 12/10/2004 9:25:00 AM |           | 2            | 93.4    | 93.8    | 93.6   | 0.2828  | 0.4        |
| DO sat     | %       | 4/11/2005 10:30:00 AM |           | 2            | 92.8    | 92.9    | 92.85  | 0.0707  | 0.1        |
| e. Coli    | #/100ml | 4/11/2005 10:30:00 AM |           | 2            | 9.8     | 17.1    | 13.45  | 5.162   | 54.2       |
| FC Field   | #/100ml | 9/10/2002 11:30:00 AM |           | 2            | 140     | 180     | 160    | 28.28   | 25.0       |
| FC Field   | #/100ml | 7/10/2003 11:00:00 AM |           | 2            | 160     | 171     | 165.5  | 7.778   | 6.6        |
| FC Field   | #/100ml | 8/10/2004 10:51:00 AM |           | 2            | 26      | 28      | 27     | 1.414   | 7.4        |
| Fecal Lab  | #/100ml | 12/10/2004 9:25:00 AM |           | 2            | 71.43   | 77.14   | 74.28  | 4.038   | 7.6        |
| Fl         | mg/l    | 9/10/2002 11:30:00 AM |           | 2            | 0.3221  | 0.3249  | 0.3235 | 0.002   | 0.8        |
| Fl         | mg/l    | 7/10/2003 11:00:00 AM |           | 2            | 0.1135  | 0.1188  | 0.1162 | 0.0037  | 4.5        |
| Fl         | mg/l    | 6/10/2004 10:03:00 AM |           | 2            | 0.1033  | 0.1307  | 0.117  | 0.0194  | 23.4       |
| K          | mg/l    | 12/10/2004 9:25:00 AM |           | 2            | 1.03    | 1.03    | 1.03   | 0       | 0.0        |
| K          | mg/l    | 4/11/2005 10:30:00 AM |           | 2            | 0.859   | 0.901   | 0.88   | 0.0297  | 4.7        |
| Mg         | mg/l    | 12/10/2004 9:25:00 AM |           | 2            | 1.97    | 1.99    | 1.98   | 0.0141  | 1.0        |
| Mg         | mg/l    | 4/11/2005 10:30:00 AM |           | 2            | 3.537   | 3.658   | 3.598  | 0.0856  | 3.3        |
| Na         | mg/l    | 12/10/2004 9:25:00 AM |           | 2            | 0.902   | 0.928   | 0.915  | 0.0184  | 2.8        |
| Na         | mg/l    | 4/11/2005 10:30:00 AM |           | 2            | 1.981   | 2.253   | 2.117  | 0.1923  | 12.8       |
| NH4        | mg/l    | 7/10/2003 11:00:00 AM |           | 2            | 0.5497  | 1.173   | 0.8614 | 0.4409  | 72.3       |
| NO3        | mg/l    | 9/10/2002 11:30:00 AM |           | 2            | 4.258   | 4.319   | 4.288  | 0.0434  | 1.4        |
| NO3        | mg/l    | 7/10/2003 11:00:00 AM |           | 2            | 4.72    | 4.736   | 4.728  | 0.0111  | 0.3        |
| NO3        | mg/l    | 6/10/2004 10:03:00 AM |           | 2            | 2.945   | 4.327   | 3.636  | 0.9771  | 38.0       |
| NO3        | mg/l    | 8/10/2004 10:51:00 AM |           | 2            | 2.852   | 5.221   | 4.562  | 1.292   | 21.2       |



# Reports & Stats Template

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO





# Reports & Stats Template

National Park Service  
U.S. Department of the Interior



Water Resources Division  
Fort Collins, CO

|    | A                    | B                           | C         | D                        | E         | F                          | G            |     |
|----|----------------------|-----------------------------|-----------|--------------------------|-----------|----------------------------|--------------|-----|
| 1  | NPSTORET Org ID/Code | Organization Name           | ProjectID | Project Name             | StationID | Station Name               | Visit Number | Vis |
| 2  | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BIGR | Green River at Bush Island | 001          |     |
| 3  | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BIGR | Green River at Bush Island | 001          |     |
| 4  | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BIGR | Green River at Bush Island | 001          |     |
| 5  | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BIGR | Green River at Bush Island | 001          |     |
| 6  | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BIGR | Green River at Bush Island | 001          |     |
| 7  | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BIGR | Green River at Bush Island | 001          |     |
| 8  | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 9  | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 10 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 11 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 12 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 13 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 14 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 15 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 16 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 17 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 18 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_BSBS | Big Spring                 | 001          |     |
| 19 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 20 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 21 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 22 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 23 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 24 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 25 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 26 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 27 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 28 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 29 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_DFDF | Doyle's Ford Spring        | 001          |     |
| 30 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_ERES | Echo River Spring          | 001          |     |
| 31 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_ERES | Echo River Spring          | 001          |     |
| 32 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_ERES | Echo River Spring          | 001          |     |
| 33 | CUPN                 | Cumberland Piedmont Network | MACA_WQ   | CUPN WQ Monitoring, MACA | MACA_ERES | Echo River Spring          | 001          |     |



# NPSTORET Imports

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



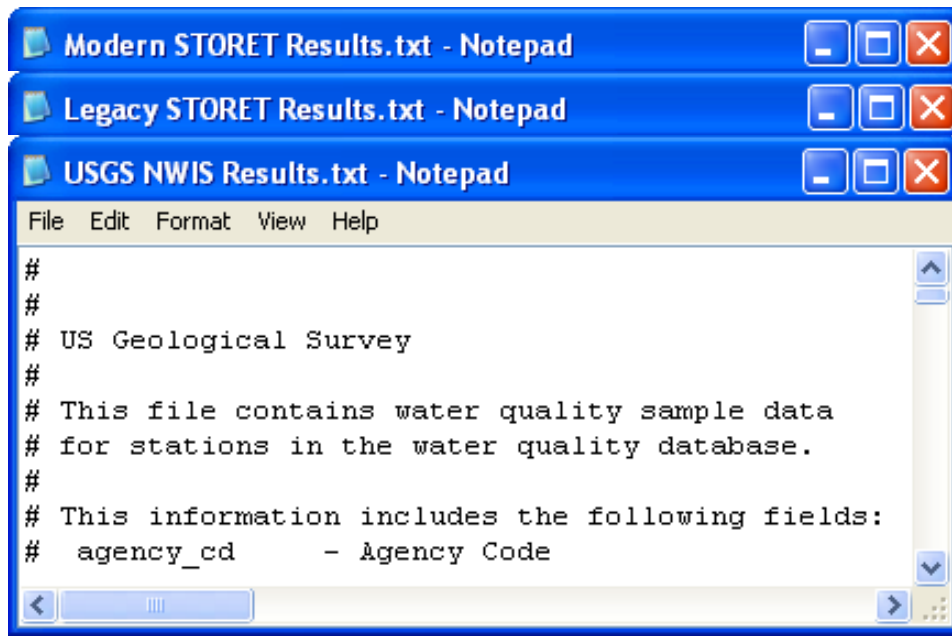
EXPERIENCE  
YOUR  
AMERICA



Import Existing Station and Results Data from User Excel, Access, and Text Files



Seamless Imports from National WQ Databases



Seamless  
Import

Automatic  
Characteristic  
Creation





# NPSTORET Overview

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



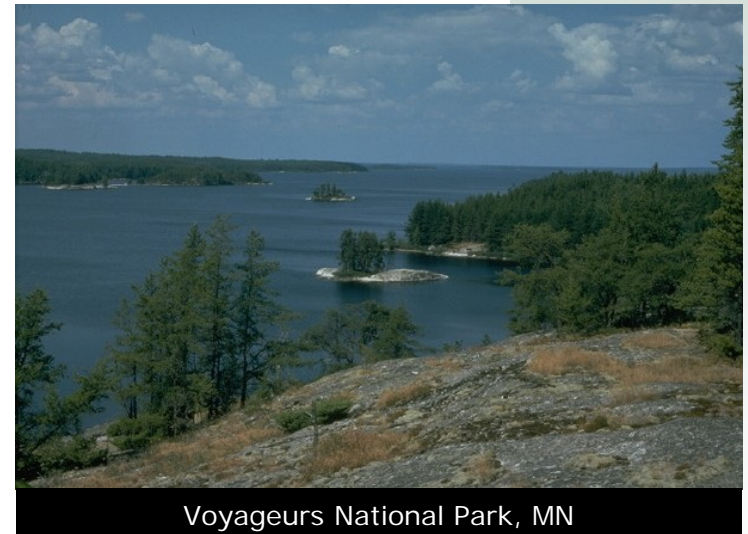
EXPERIENCE  
YOUR  
AMERICA

 Version 1.53 available for download at:

[ftp.epa.gov/storet/alliance/downloads/storetv2.x/NPSTORET\\_1\\_53\\_Setup.exe](ftp.epa.gov/storet/alliance/downloads/storetv2.x/NPSTORET_1_53_Setup.exe)

## Learning Resources

- Context sensitive help
- First time user's guide
- Workshop guide
- Videos
- Data import instructions



Voyageurs National Park, MN

 Version 2.00 later this year



# NPSTORET Overview

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



## Future Versions

- User-defined WQ Standards
- Google Earth Thematic Map Result Display
- Depth Profile Entry and Graphics
- Automatic Data Logger Support
- WQX – XML Export
- More Data QA
- Additional Biological Data Support
- Non-parametric Statistics/Trend Analysis
- User-entered Data Qualifiers
- Lots of Other Ideas

EXPERIENCE  
YOUR  
AMERICA



Haleakala National Park, HI



# NPSEDD – “Eddy”

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

- STORET Electronic Data Deliverable
- Hybrid of several state and federal EDDs adapted for NPS
- Set of Microsoft Excel spreadsheets designed to collect the data necessary to drive SIM





# NPSEDD Overview

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

Microsoft Excel

File Edit View Insert Format Tools Data Window Help Adobe PDF

Type a question for help

A2

Ex\_Projects.xls [Read-Only]

|    | A  | B   |
|----|--|---|
| 1  | The 5 fields in red lettering are required. SIM supports the first 7 fields, however |   |
| 2  |  |   |
| 3  | tblLegacy_STORET_Projects  |   |
| 4  | ProjectID  | Name  |
| 5  | SHIL0004   | Packaging Corporation of America NPDES survey sheet |
| 6  | CAVE0011   | Lechuguilla Cave Water Study by Gregg Oelker        |
| 7  | CABR0001   | City of San Diego Ocean Monitoring Program          |
| 8  | FOCO0001   | WRD Test Site in Chesapeake Bay                     |
| 9  | BISC0016   | Groundwater Characterization Biscayne National Park |
| 10 |  |   |
| 11 |  |   |
| 12 |  |   |
| 13 |  |   |
| 14 |  |   |
| 15 |  |   |
| 16 |  |   |
| 17 |  |   |
| 18 |  |   |
| 19 |  |   |
| 20 |  |   |
| 21 |  |   |
| 22 |  |   |
| 23 |  |   |
| 24 |  |   |
| 25 |  |   |
| 26 |  |   |
| 27 |  |   |
| 28 |  |   |
| 29 |  |   |
| 30 |  |   |
| 31 |  |   |
| 32 |  |   |
| 33 |  |   |
| 34 |  |   |

Project Info

Ex\_Stations.xls [Read-Only]

|    | A  | B   |
|----|--|---|
| 1  | The 54 fields below are supported by SIM. Nine fields in red letters are required. |   |
| 2  |  |   |
| 3  | tblLegacy_STORET_Stations.xls  |   |
| 4  | Station ID   | Station Name                                      |
| 5  | BISC_USGS_AR   | Alina's Reef Surface Water in Biscayne Bay        |
| 6  | BISC_USGS_AR1A   | Well AR1A 60' below seafloor at Alina's Reef in I |
| 7  | BISC_USGS_AR1B   | Well AR1B 32' below seafloor at Alina's Reef in I |
| 8  | BISC_USGS_AR1C   | Well AR1C 12' below seafloor at Alina's Reef in I |
| 9  | BISC_USGS_BPI  | er in Biscayne                                    |
| 10 | BISC_USGS_BY   | cayne Bay   |
| 11 | BISC_USGS_MB   | ne Bay  |
| 12 | BISC_USGS_PP   | cayne Bay   |
| 13 | BISC_USGS_PR   | Pacific Reef Surface Water in Biscayne Bay        |
| 14 | CABR_OMP_A01   | Pacific Ocean 1.9 km west of the Point Loma Li    |
| 15 | CABR_OMP_A02   | Pacific Ocean 3.4 km west of the Point Loma Li    |

Station Info

Ex\_NonBioResults.xls [Read-Only]

|    | A   | B               | C              | D   | E          |
|----|---|-----------------|----------------|---|------------|
| 1  | This Results Worksheet contains eight required fields in red lettering. There are also many fields in |                 |                |   |            |
| 2  |   |                 |                |   |            |
| 3  |   |                 |                |   | Trip QC Ty |
| 4  | Trip ID   | Trip Start Date | Trip Stop Date | Trip Name                                     | Trip QC Ty |
| 5  | BISC0016-2002   | 08/20/2002      |                | Groundwater Characterization in Biscayne Nati |            |
| 6  | BISC0016-2002   | 08/20/2002      |                | Groundwater Characterization in Biscayne Nati |            |
| 7  | BISC0016-2002   | 08/20/2002      |                | Groundwater Characterization in Biscayne Nati |            |
| 8  | BISC0016-2002   | 08/20/2002      |                | Groundwater Characterization in Biscayne Nati |            |
| 9  | BISC0016-2003   | 06/22/2003      |                | h in Biscayne Nati                            |            |
| 10 | BISC0016-2003   | 06/22/2003      |                | h in Biscayne Nati                            |            |
| 11 | BISC0016-2003   | 06/22/2003      |                | h in Biscayne Nati                            |            |
| 12 | BISC0016-2003   | 06/22/2003      |                | Groundwater Characterization in Biscayne Nati |            |
| 13 | BISC0016-2003   | 06/22/2003      |                | Groundwater Characterization in Biscayne Nati |            |
| 14 | BISC0016-2003   | 06/22/2003      |                | Groundwater Characterization in Biscayne Nati |            |
| 15 | BISC0016-2003   | 06/22/2003      |                | Groundwater Characterization in Biscayne Nati |            |

Result Info



# NPSEDD Overview

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA



Designed to drive SIM



NPSEDD v.1.1 available for  
download at:

<http://nrdata.nps.gov/Programs/Water/NPSEDD/NPSEDD1.1.ZIP>



Glen Canyon NRA, UT



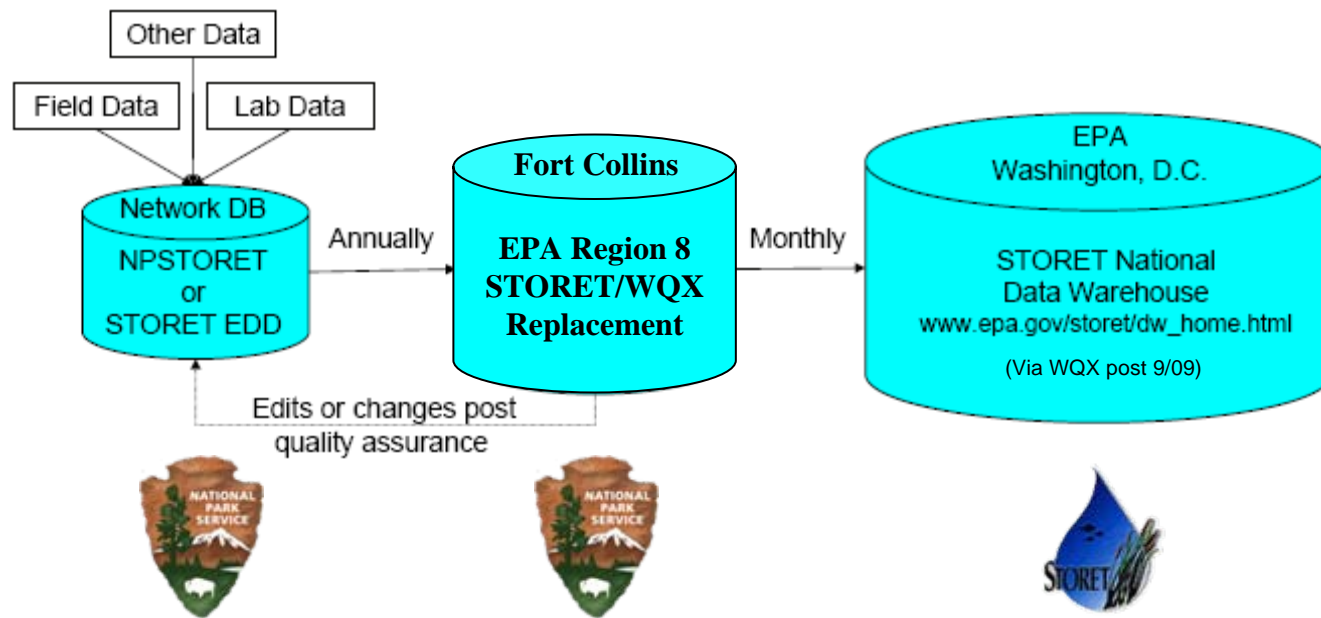
# NPS WQ Data Flow

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA



<http://www.nature.nps.gov/water/infoanddata/index.htm>



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

EPA > Water > Wetlands, Oceans, & Watersheds > Monitoring and Assessing Water Quality > STORET - Windows Internet Explorer

US EPA http://www.epa.gov/storet/ Live Search

US EPA > Water > Wetlands, Oceans, & Watersheds > ...

U.S. ENVIRONMENTAL PROTECTION AGENCY


## STORET

[Recent Additions](#) | [Contact Us](#) | [Print Version](#) Search:  [GO](#)

[EPA Home](#) > [Water](#) > [Wetlands, Oceans, & Watersheds](#) > [Monitoring and Assessing Water Quality](#) > STORET

### Welcome to STORET, EPA's largest computerized environmental data system.

STORET (short for STOrage and RETrieval) is a repository for water quality, biological, and physical data and is used by state environmental agencies, EPA and other federal agencies, universities, private citizens, and many others. Take a minute to browse around our site or click on the water drop to retrieve monitoring data!



#### Features

- [Download Data](#)
- [Watershed Summary](#)
- [WQX](#) - Information about the Future of STORET
- [Tribal Water Quality](#)
- [2007 Users Conference](#) - Proceedings now available
- [SIM Software](#)
- [Fact Sheets](#)
- [STORET Web Services](#)

Internet 100%



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

EPA > STORET > Database Access - Windows Internet Explorer

US EPA http://www.epa.gov/storet/dbtop.html Live Search

US EPA > STORET > Database Access

U.S. ENVIRONMENTAL PROTECTION AGENCY

## STORET

[Recent Additions](#) | [Contact Us](#) | [Print Version](#) Search:  **GO**

[EPA Home](#) > [Water](#) > [Wetlands, Oceans, & Watersheds](#) > [Monitoring and Assessing Water Quality](#) > [STORET](#) > Database Access

### STORET Database Access



STORET data available on the Internet is divided into two separate databases, according to when it was originally supplied to EPA, and to which of our two STORET databases it was originally archived. We call the older of these two databases the **STORET Legacy Data Center** (LDC for short), and the more current **Modernized STORET**.

#### STORET Legacy Data Center

Data supplied to EPA before 1999 were all placed in Legacy STORET. This system, designed in the 1960s, was a pioneer in the long term archival of field water monitoring results.

The Legacy Data Center contains data of undocumented quality. Further, these data are static. The Legacy Data Center does not permit updates, and data here will not change over time. All new data are being entered into Modernized STORET. Because the data do not change over time, it is never necessary to repeat a specific download.

[Browse or Download  
Legacy STORET Data](#)

#### Modernized STORET

All data supplied to EPA since January 1, 1999 have been placed in the Modernized STORET System. A full description of the design of this system can be examined on our [ABOUT STORET](#) page.

Modernized STORET is currently receiving new data on a regular basis, and will continue to do so for the foreseeable future. Downloads performed for the same sites may differ over time as a result of the addition of new data by their owners.

[Browse or Download  
Modernized STORET Data](#)



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EPA > STORET > Database Access > STORET Central Warehouse - Windows Internet Explorer

US EPA http://www.epa.gov/storet/dw\_home.html Live Search

US EPA > STORET > Database Access > STORET Central... Page Tools

EXPERIENCE  
YOUR  
AMERICA



About STORET  
Data Owner's Corner  
Updates/Downloads  
Obtaining Water  
Quality Data  
Useful Internet Links  
Commonly Asked  
Questions  
Recent Additions

U.S. ENVIRONMENTAL PROTECTION AGENCY

## STORET

[Recent Additions](#) | [Contact Us](#) | [Print Version](#) Search:  **GO**

[EPA Home](#) > [Water](#) > [Wetlands, Oceans, & Watersheds](#) > [Monitoring and Assessing Water Quality](#) > [STORET](#) > [Database Access](#) > Data Warehouse



## STORET Data Warehouse

Data refreshed as of December 26, 2007

### Query Options

### STORET Warehouse Watershed Summary

[Summary of Results by Watershed](#)

### STORET Station Descriptions

[Stations by Geographic Location](#)

[Stations by Organization and Station ID](#)

### STORET Regular Results

(Non-Biological Physical and Chemical Result Data)

[Regular Results by Geographic Location](#)

[Regular Results by Station](#)

[Regular Results by Project](#)

### [Tell Us What You Think!](#)

### [What's New with the STORET Data Warehouse?](#)

This page offers information about the recent changes made to STORET Warehouse.

### [How to Query and Download Data](#)

This exercise gives step by step instructions on how to generate, download, export (to Microsoft Excel or Access), and analyze a data query from the STORET Data Warehouse as well as the new Watershed Summary.

\* Adobe Acrobat® Reader required.

### [Make a Map](#)

Create a map of monitoring locations from STORET using either [EnviroMapper for Water](#) or [Window to My Environment](#).

Internet

100%



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

EPA > STORET > Regular Results by Project - Windows Internet Explorer

http://iaspub.epa.gov/stormodb/DW\_resultcriteria\_project Live Search

EPA > STORET > Regular Results by Project



U.S. ENVIRONMENTAL PROTECTION AGENCY

## STORET

[Recent Additions](#) | [Contact Us](#) | [Print Version](#)

Search:

GO

[EPA Home](#) > [Water](#) > [Wetlands, Oceans, & Watersheds](#) > [Monitoring and Assessing Water Quality](#) > [STORET](#) > Data Warehouse

Select an Organization

All Organizations (National Projects)

|              |   |
|--------------|---|
| 0800257      | Clear Creek Superfund                                       |
| 0800597      | Ogden Railyard (US EPA Region 8)                            |
| 0800650      | International Smelter (US EPA Region 8)                     |
| 0800852      | Mystery Bridge Road - US Highway 20                         |
| 0801194      | Summitville Superfund site (US EPA Region 8)                |
| 0801417      | Red Mountain Pass Zinc (US EPA Region 8)                    |
| 0801478      | California Gulch (US EPA Region 8)                          |
| 0801505      | French Gulch Superfund site (US EPA Region 8)               |
| 0801600      | Captain Jack Mine (Colorado)                                |
| 0801695      | Region 8 Superfund: Delta 400 West Plume                    |
| 0801698      | Region 8 Superfund: 3700-3800 West 2100 South Solvent Plume |
| 0801812      | Region 8 Superfund: Murray Laundry 4200 S State Plume       |
| 081575       | Slide Mine Boulder County Colorado                          |
| 081577       | Vasquez Blvd and I-70                                       |
| 081700       | Gilt Edge Mine  |
| 0834QB00     | Cheyenne River  |
| 11113300     | New Hampshire Dept. of Environmental Services               |
| 11113300_WQX | New Hampshire Dept. of Environmental Services               |
| 1111REG1     | USEPA, Region I   |
| 1117MBR      | US EPA Region 7   |
| 1119USBR     | Bureau of Reclamation                                       |
| 11DELMOD     | Delaware River Basin Commission                             |
| 11FLKNMS     | Florida Keys National Marine Sanctuary (Florida)            |
| 11NPSWRD     | National Park Service                                       |
| 11TOX09      | U. S. EPA Region 9 (Monitoring & Assessment Office)         |
| 1CTDPHBM     | Connecticut Department of Public Health                     |
| 1CTDPHBM_WQX | Connecticut Department of Health                            |
| 1VTDECWQ     | Vermont Dept of Environmental Conservation                  |



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EPA > STORET > Regular Results by Project - Windows Internet Explorer

http://iaspub.epa.gov/stormodb/DW\_resultcriteria\_project



EPA > STORET > Regular Results by Project



Page



Tools

PERIENCE  
YOUR  
AMERICA



U.S. ENVIRONMENTAL PROTECTION AGENCY

## STORET

[Recent Additions](#) | [Contact Us](#) | [Print Version](#)

Search:

GO

[EPA Home](#) > [Water](#) > [Wetlands, Oceans, & Watersheds](#) > [Monitoring and Assessing Water Quality](#) > [STORET](#) > Data Warehouse

STORET: Select a Project - Windows Internet Explorer

http://iaspub.epa.gov/stormodb/DW\_PROJ\_POPUP?v\_orc

Project

Station Type

Select a Project for the Organization: National Park Service

| Project ID | Project Name   |
|------------|--|
| ABLI0001   | Monitoring of Sinking Spring by the Kentucky DEP             |
| ABLI0002   | William Werrell's 25 May 1994 Trip Report on file at NPS-WRD |
| ABLI0003   | USGS National Uranium Resource Evaluation Data               |
| ABLI_WQ    | CUPN WQ Monitoring, ABLI                                     |
| ACAD0001   | Pathogenic Naegleria fowleri & Thermotolerant Amebas Sur.-01 |
| AGFO0001   | Macroinvertebrate Assemblages in Great Plains Parks-1        |
| AGFO0002   | Survey of Geology and Ground-Water Resources                 |
| AGFO_NGP   | WQ Baseline Data for the Northern Great Plains Network AGFO  |

Select

Cancel

Done

Done

Internet

100%

100%



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EPA > STORET > Regular Results by Project - Windows Internet Explorer

http://iaspub.epa.gov/stormodb/DW\_resultcriteria\_project Live Search

EPA > STORET > Regular Results by Project

Page Tools



U.S. ENVIRONMENTAL PROTECTION AGENCY

## STORET

[Recent Additions](#) | [Contact Us](#) | [Print Version](#)

Search:  [GO](#)

[EPA Home](#) > [Water](#) > [Wetlands, Oceans, & Watersheds](#) > [Monitoring and Assessing Water Quality](#) > [STORET](#) > Data Warehouse

### Regular Results by Project (stormodb)

#### Project

Step 1: Select a Single Organization from the List

ORG ID

ORGANIZATION NAME

11NPSWRD

National Park Service

Step 2: Select a Single Project by Clicking "Look Up"

ABLI\_WQ

CUPN WQ Monitoring, ABLI

[Look Up](#)

#### Station Type

Select one or more Station Type(s)

PRIMARY TYPE

SECONDARY TYPE

Select All

River/Stream

Lake

Great Lake

Well

Facility Industrial

Facility Municipal Sewage (POTW)

Facility Other

Facility Privately Owned Non-industrial

Facility Public Water Supply (PWS)

Done

Internet

100%

EXPERIENCE  
YOUR  
AMERICA



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EPA > STORET > Regular Results by Project - Windows Internet Explorer

http://iaspub.epa.gov/stormodb/DW\_resultcriteria\_project Live Search

EPA > STORET > Regular Results by Project

Page Tools

EXPERIENCE  
YOUR  
AMERICA

## Date

Specify Activity Start Date range(s)

Date Range 1: JAN 1 1900 To FEB 7 2008  
Date Range 2: --- --- --- To --- --- ---  
Date Range 3: --- --- --- To --- --- ---  
Date Range 4: --- --- --- To --- --- ---

## Activity Medium

Select one or more Activity Medium

ACTIVITY MEDIUM

Select All  
Water  
Sediment  
Soil  
Air  
Other  
Biological Tissue

## Characteristic

Use the Characteristic Search to create a list of up to 50 Characteristics

Characteristic Search

Search By

CHARACTERISTIC NAME

Search

☒ Hide Taxonomic Names

Characteristic Name



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EPA > STORET > Result Search Summary - Windows Internet Explorer

http://iaspub.epa.gov/stormodb/DW\_RESULT\_COUNT

Live Search

EPA > STORET > Result Search Summary

U.S. ENVIRONMENTAL PROTECTION AGENCY

**STORET**

[Recent Additions](#) | [Contact Us](#) | [Print Version](#) Search:  **GO**

[EPA Home](#) > [Water](#) > [Wetlands, Oceans, & Watersheds](#) > [Monitoring and Assessing Water Quality](#) > [STORET](#) > [Data Warehouse](#)

## Result Search Summary (stormodb)

**Number of Results Returned: 778**

**Search Criteria**

**Station Type(s):** ALL

**Organization:** 11NPSWRD

**Project:** ABLI\_WQ - CUPN WQ Monitoring, ABLI

**Activity Start Dates:** ALL

**Medium:** ALL

**Characteristic(s):** ALL

Select 'Back' to modify search parameters and refine your query.  
Select Batch Processing to generate the report offline based on your current selections.  
You may customize the content of your report by selecting Data Elements below.

Please enter your email address:

Done

Internet 100%

EXPERIENCE  
YOUR  
AMERICA



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

EPA > STORET > Result Search Summary - Windows Internet Explorer

http://iaspub.epa.gov/stormodb/DW\_RESULT\_COUNT

Please enter your email address:

Please specify three characters to prefix your report name:

**Batch Processing**

Note: Download files will exceed maximum limits for spread sheet applications (ie. EXCEL - Worksheet size: 65,536 Rows.)

**Select Data Elements for Report**

|  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> <a href="#">Org ID</a>                 | <input checked="" type="checkbox"/> <a href="#">Actual Point Name</a>              | <input checked="" type="checkbox"/> <a href="#">Units</a>                      |
| <input checked="" type="checkbox"/> <a href="#">Beach ID</a>               | <input checked="" type="checkbox"/> <a href="#">Actual Activity Lat/Long*</a>      | <input checked="" type="checkbox"/> <a href="#">Converted Result Value</a>     |
| <input checked="" type="checkbox"/> <a href="#">Org Name</a>               | <input checked="" type="checkbox"/> <a href="#">Conv Actual Activity Lat/Long*</a> | <input checked="" type="checkbox"/> <a href="#">Converted Result Unit</a>      |
| <input checked="" type="checkbox"/> <a href="#">Station ID</a>             | <input checked="" type="checkbox"/> <a href="#">Well Number</a>                    | <input checked="" type="checkbox"/> <a href="#">Result Comment</a>             |
| <input checked="" type="checkbox"/> <a href="#">Station Name</a>           | <input checked="" type="checkbox"/> <a href="#">Pipe Number</a>                    | <input checked="" type="checkbox"/> <a href="#">Result Free Text</a>           |
| <input checked="" type="checkbox"/> <a href="#">Station Location Info*</a> | <input checked="" type="checkbox"/> <a href="#">Additional Act Location Info*</a>  | <input checked="" type="checkbox"/> <a href="#">Weight Basis</a>               |
| <input checked="" type="checkbox"/> <a href="#">Station Lat/Long*</a>      | <input checked="" type="checkbox"/> <a href="#">Activity Depth</a>                 | <input checked="" type="checkbox"/> <a href="#">Temperature Basis</a>          |
| <input checked="" type="checkbox"/> <a href="#">Conv Station Lat/Long*</a> | <input checked="" type="checkbox"/> <a href="#">Activity Depth Unit</a>            | <input checked="" type="checkbox"/> <a href="#">Duration Basis</a>             |
| <input checked="" type="checkbox"/> <a href="#">Station Types*</a>         | <input checked="" type="checkbox"/> <a href="#">Activity Upper Depth</a>           | <input checked="" type="checkbox"/> <a href="#">Particle Size Basis</a>        |
| <input checked="" type="checkbox"/> <a href="#">S/G/O Indicator</a>        | <input checked="" type="checkbox"/> <a href="#">Activity Rel Depth</a>             | <input checked="" type="checkbox"/> <a href="#">Distance Measured From</a>     |
| <input checked="" type="checkbox"/> <a href="#">Visit Num</a>              | <input checked="" type="checkbox"/> <a href="#">Activity Lower Depth</a>           | <input checked="" type="checkbox"/> <a href="#">Distance Measured To</a>       |
| <input checked="" type="checkbox"/> <a href="#">Visit Start*</a>           | <input checked="" type="checkbox"/> <a href="#">Upr Lwr Depth Unit</a>             | <input checked="" type="checkbox"/> <a href="#">Analytical Proc ID</a>         |
| <input checked="" type="checkbox"/> <a href="#">Visit Stop*</a>            | <input checked="" type="checkbox"/> <a href="#">Activity Depth Ref Point</a>       | <input checked="" type="checkbox"/> <a href="#">Additional Anal Proc Info*</a> |
| <input checked="" type="checkbox"/> <a href="#">Trip ID</a>                | <input checked="" type="checkbox"/> <a href="#">Sample Collection ID</a>           | <input checked="" type="checkbox"/> <a href="#">Lab Remark</a>                 |
| <input checked="" type="checkbox"/> <a href="#">Trip Name</a>              | <input checked="" type="checkbox"/> <a href="#">Field Gear ID</a>                  | <input checked="" type="checkbox"/> <a href="#">Dilution Ind</a>               |

Internet 100%



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

EPA > STORET > Result Data request via Immediate batch process - Windows Internet Explorer

http://iaspub.epa.gov/stormodb/DW\_result\_hub\_custom

EPA > STORET > Result Data request via Immediate ...

U.S. ENVIRONMENTAL PROTECTION AGENCY

**STORET**

[Recent Additions](#) | [Contact Us](#) | [Print Version](#) Search:  **GO**

[EPA Home](#) > [Water](#) > [Wetlands, Oceans, & Watersheds](#) > [Monitoring and Assessing Water Quality](#) > [STORET](#) > [Data Warehouse](#)

## Result Data request via Immediate batch process (stormodb)

You have requested for a custom result download via Immediate batch processing.  
The Request is successfully submitted. A confirmation is sent to the email address you provided.

### Request Information

Request ID : 630715  
Request Type : Result Download  
Record Count : 778  
Request Mode : Immediate batch  
File Name : DFT\_20080207\_165117.zip  
URL : [http://www.epa.gov/storpubl/modern/downloads/DFT\\_20080207\\_165117.zip](http://www.epa.gov/storpubl/modern/downloads/DFT_20080207_165117.zip)  
Email Address : Dean\_Tucker@NPS.GOV  
You will be notified when the request is processed.

[<<Back](#)

[Help](#)

---

[EPA Home](#) | [Privacy and Security Notice](#) | [Contact Us](#)

Last updated on Monday, September 3rd, 2007  
URL: [http://iaspub.epa.gov/stormodb/DW\\_result\\_hub\\_custom](http://iaspub.epa.gov/stormodb/DW_result_hub_custom)

Internet 100%



# STORET Data Warehouse

National Park Service  
U.S. Department of the Interior



Water Resources Division  
Fort Collins, CO

WinZip - DFT\_20080207\_165117.zip

Microsoft Excel - Data\_DFT\_20080207\_165117\_RegResults.txt

File Edit View Insert Format Tools Data Window Help Adobe PDF

Type a question for help

SnagIt Window

|    | A        | B          | C                     | D          | E            | F        | G      | H       | I             | J                |         |
|----|----------|------------|-----------------------|------------|--------------|----------|--------|---------|---------------|------------------|---------|
|    | Org ID   | Project ID | Org Name              | Station ID | Station Name | State    | County | HUC     | Generated HUC | Station Latitude | Station |
| 1  | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 2  | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 3  | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 4  | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 5  | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 6  | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 7  | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 8  | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 9  | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 10 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 11 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 12 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 13 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 14 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 15 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 16 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 17 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 18 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 19 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 20 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 21 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 22 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 23 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 24 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 25 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 26 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 27 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 28 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 29 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 30 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 31 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 32 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |
| 33 | 11NPSWRD | ABLI_WQ    | National Park Service | ABLI_KCKC  | Knob Creek   | KENTUCKY | LARUE  | 5140103 | 5140103       | 37.6114166       | -       |

Ready

NUM

EXPERIENCE  
YOUR  
AMERICA



# Lessons Learned

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

 No one size fits all solution

 Stay flexible



 Importance of standards

 Importance of data sharing



Cabrillo National Monument, CA



# National Park Service

National Park Service  
U.S. Department of the Interior

Water Resources Division  
Fort Collins, CO



EXPERIENCE  
YOUR  
AMERICA

## Contact Info:

Dean F. Tucker  
(970)-225-3516  
Dean\_Tucker@NPS.GOV

## Additional Info:

<http://www.nature.nps.gov/water/infoanddata/index.htm>

Great Smoky Mountains National Park, NC/TN